

AMENDMENT TO THE CLAIMS

Replace the claims with the following revised version:

1. – 29. (Canceled)

30. (New) A method of protecting a building structure against dynamic forces from accelerations of a base of the building structure, comprising:

supporting the building structure with a load bearing system including a stable supporting element able to swing in any lateral direction and lift the building structure and an unstable supporting element able to swing in any lateral direction and lower the building structure, the stable supporting element and the unstable supporting element being connected to the base at base-connected support points; and

displacing the base-connected support points relative an inert mass of the building structure during the accelerations of the base to cause a minimal lift of the building structure generating a small stabilizing returning force which returns the building structure to an original position at an insignificant acceleration of the building structure with a long period of a natural oscillation of the building structure.

31. (New) A device for protecting a building structure against oscillations of a base of the building structure, the device comprising:

a coupling element;

a support point disposed on the coupling element, the building structure being supported at the support point; and

a supporting element for connecting the coupling element to the base, the supporting element being coupled with the coupling element and capable of swinging in any direction;

wherein the supporting element is dimensioned and positioned such that the support point is able to freely move in any lateral direction as a free end of a very long bi-axially suspended virtual pendulum traversing a path of movement of a locus of a concave sphere in response to the oscillations of the base.

32. (New) The device of claim 31, wherein, during the oscillation of the base, the coupling element is capable of being lifted at a first end and lowered at an opposite second end, the first and second ends being connected to the supporting element, such that the support point experiences only a minimal lift and moves in a path of a flatly curved concave locus.

33. (New) The device of claim 31, wherein the supporting element comprises:
a hanging stable pendulum bi-axially hinged at an upper end to a hinge point fixed to the base and at a lower end to a first end of the coupling element; and

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a standing unstable pendulum bi-axially hinged at a lower end to the base and at an upper end to a second end of the coupling element, the second end being opposite the first end; and

wherein the coupling element comprises two bearings for connecting the coupling element to the building structure such that the coupling element is prevented from rotating around a vertical axis of the building structure.

34. (New) The device of claim 33, wherein the coupling element comprises a first portion connected to the support point and to the hanging stable pendulum, a second portion connected at one end to the building structure and at a second end to the unstable pendulum, and a third portion connecting the first and second portions.

35. (New) The device of claim 31, wherein the supporting element comprises a first support, a second support, and a third support, each first, second, and third support respectively bi-axially hinged to three bearing points along a perimeter of the coupling element, the first, second, and third support further respectively bi-axially hinged to suspension points rigidly connected to the base, such that each of the first, second, and third supports, when disposed in a resting position, are angled upwards and away from a center of the coupling element.

36. (New) The device of claim 35, wherein the support point is located above a plane formed by the three bearing points.

37. (New) The device of claim 31, wherein the supporting element comprises a first support and a second support, the first and second supports being parallel to one another and bi-axially joined at respective lower ends to the coupling element and at respective upper ends to hinge points rigidly connected with the base, the coupling element further comprising a tilting support element disposed in a one axial bearing at a middle of the coupling element, the tilting support being tiltable in a direction of the hinge points and being positioned in a bi-axially bearing with axially movability located beneath the coupling element and in a bi-axial bearing with bi-axial movability at the support point.

38. (New) The device of claim 37, wherein the first and second supports comprise a plurality of symmetrically positioned parallel support members and wherein the tilting support element is disposed in a biaxial bearing.

39. (New) The device of claim 31, further comprising:

a shaft positioned beneath the building structure between the building structure and the base for restraining lateral forces;

a preloaded extension spring having one end connected to a lower end of the shaft and a second end rigidly connected to either the base or the building structure;

a bi-axially movable spherical bearing connected either to the building structure or to the base;

wherein an upper end of the shaft sticks axially movable into the bi-axially movable spherical bearing;

wherein a general position of the building structure and the base is fixed and a relative movability of the building structure and base toward each other is possible when a lateral force impacts the shaft that exceeds a tension force of the preloaded extension spring.

40. (New) The device of claim 31, further comprising:

a shaft positioned beneath the building structure, between the building structure and the base, to retain lateral forces;

an elastomeric spring block rigidly connected to the base or to the building structure and rigidly connected to a one end of the shaft; and

a bi-axially spherical bearing connected either to the building structure or the base;

wherein a second end of the shaft sticks axially movable into the bi-axially movable spherical bearing;

wherein a position of the building structure and the base with respect to each other is elastically fixed.

41. (New) The device of claim 31, further comprising:

a compensation device for compensating a wind load including a vertically guided sphere, rotatable in all directions, pressed with a predetermined force by a mechanical or hydropneumatic spring downwards into a center of a hollow cone rigidly connected to the base which has an opening angle that increases from a center to hundred-eighty degrees;

wherein a shape locked connection between the building structure and the base is formed that can transfer horizontal forces up to a limit value determined by a force of the spring and the opening angle;

wherein, when the limit value is exceeded by the horizontal force, an incline of the hollow cone lifts the sphere vertically against the spring force, and the sphere rolls into an area of lessening incline of the hollow cone, through which the horizontally transferable force decreases and becomes zero outside the area of the hollow cone, and therefore, during relative movements of the base towards and the building structure minimal horizontal forces are transferred from the base onto the building structure.

42. (New) Device according to claim 41, wherein the vertically guided centering sphere is held in a dish with rolling balls and is pushed by a mechanical or hydropneumatic or visco elastic spring into the centering hollow cone so that no horizontal wind force impacting the building structure can cause a reaction force at a

connecting point of the centering ball with the hollow cone, which vertical component could push the centering ball up in its vertical guidance against the spring force.

43. (New) Device according to claim 41, wherein the centering hollow cone, outside of the circle that is formed by the contact line of the centering sphere with the hollow cone in its lowest position within, has an up to 180° increasing opening angle so that a horizontal component of a normal force in the contact point of the centering sphere with the centering cone decreases radially outward when a lateral displacement force which is greater than maximum horizontal wind loads compresses, through the centering sphere, the vertical spring in its vertical guidance, and the contact point of the centering sphere and the centering cone moves radially outward in the centering cone.

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44. (New) Device according to claim 41, wherein the centering sphere in a vertical guidance can move undamped if a vertical force caused by a horizontal displacement of the centering hollow cone exceeds the spring force and wherein a pushing back of the vertical guidance with the centering sphere by the spring is slowed to a very low speed by a hydraulic throttling so that a time period for a full spring return is a multiple of a maximum oscillation time period.

45. (New) The device of claim 2, further comprising at least three pairs of mechanical or hydropneumatic springs disposed between a vertical wall of the base and the building structure and around the building structure having a low spring rate, the first pair of springs being for a vertical axis of movement, the second pair of springs being for a horizontal axis of movement, and the third pair of springs being for another horizontal axis of movement, the springs each including a sliding or rolling gear at the vertical wall of the base horizontally movable with a roll on an extendable guidance system.

46. (New) Device according to claim 45, wherein, to maintain an equal distance between walls of the building structure and walls of the base during movement of the spring caused by a shift of the building structure relative to the base by a wind force, the

spring force is automatically increased and governed by hydraulic control valves until full extension into a required position is established.

47. (New) Device according to claim 45, wherein relative movement between the oscillating base and the building structure, supported by the virtual pendulum which decouples the supported building structure from the oscillating base, is used to power one or several pumps for auxiliary energy, the pumps being configured by themselves or in connection with centering and wind force compensating elements that respond to the relative movement.

48. (New) The device of claim 31, wherein the building structure includes a main portion which is exposed to wind loads and a separated portion which is not exposed to the wind loads and serves as a position reference for position control of the main portion.

49. (New) The device of claim 31, further comprising a load support element disposed between the support point and the building structure and including a mechanical, hydropneumatic, or fluid elastic vertical spring element having a very low spring rate and corresponding damping.

50. (New) The device of claim 49, further comprising devices for wind load compensation and vertical shock absorption.

51. (New) The device of claim 31, the device further comprising a pole fixed to the base, the building structure being supported on the pole, wherein the supporting element comprises a first supporting element including two hanging pendulums and a second supporting element including one standing pendulum, the first and second supporting elements being angled away from a middle of the pole to compensate skewness of the pole and support point during oscillation.

52. (New) The device of claim 33, wherein the support point is disposed at an underside of the coupling element and the supporting element comprises rope, the building structure being an building structure hanging from the rope.

53. (New) The device of claim 37, wherein the supporting element comprises rope.

54. (New) The device of claim 33, wherein the hanging stable pendulum hangs from a ceiling connected to the base through the building structure and the unstable standing pendulum is supported at the lower end by rods, ropes, or chains suspended from the ceiling.

55. (New) The device of claim 31, wherein the device comprises three virtual pendulums supporting the building structure for reducing oscillation of a mass.

56. (New) The device of claim 33, wherein the hanging stable pendulum comprises a rope or a chain.

57. (New) The device of claim 31, wherein the base comprises a foundation having an inclined curvature near rims of the foundation.

58. (New) The device of clam 33, wherein the coupling element directly serves as a bearing for the building structure.
